The opinion in support of the decision being entered today was *not* written for publication and is *not* binding precedent of the Board

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Ex parte DIRK OOMS and WIM LIVENS

Appeal 2007-1116
Application 09/422,347[1]
Technology Center 2600

Decided: April 25, 2007

Before: ANITA PELLMAN GROSS, STUART S. LEVY, and ROBERT E. NAPPI, *Administrative Patent Judges*.

LEVY, Administrative *Patent Judge*.

DECISION ON APPEAL

STATEMENT OF CASE

Appellants appeal under 35 U.S.C. § 134 (2002) from a final rejection of claims 1-7, 9, and 11-20.[2] We have jurisdiction under 35 U.S.C. § 6(b) (2002).

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[1] Application filed October 21, 1999. The real party in interest is the assignee, Alcatel.

Appellants invented a device and method to compress destination addresses of a multicast message. (Specification 1).

Claims 1 and 19 are representative of the invention and read as follows:

> 1. A device for compressing a list of final destination addresses for a multicast message, wherein each final destination address in said list represents a different final destination host, said device comprising:
>
> a detector that detects a common prefix in at least two different final destination addresses from said list of final destination addresses,
>
> a generator that generates a suffix list for final destination addresses from said list of final destination addresses that are detected to have a common prefix, wherein said suffix list represents the non-identical portions of said final destination addresses detected to have a common prefix, and
>
> an adder that adds said suffix list to said common prefix to create a compound destination address consisting of compressed final destination addresses.
>
> 19. A communications network comprising:
>
> a host that generates multicast packets, wherein said host comprises a device for compressing a list of final destination addresses according to claim 1; and

[2] An amendment filed on October 28, 2005 under the provisions of 37 C.F.R § 1.116 was refused entry by the Examiner (Br. 5).

a router connected to said host, wherein said router receives a compound destination address created by said host and derives the common prefixes from said compound destination address to determine the next hop for each common prefix.

The Examiner rejected claims 1-7, 9, and 11-20 under 35 U.S.C. § 103(a) (2004) as being unpatentable over Boivie.

The prior art relied upon by the Examiner in rejecting the claims on appeal is:

Boivie	US 6,502,140 B1	Dec. 31, 2002 (Jan. 29, 1999)

We note at the outset that Appellants present specific arguments with respect to claims 1, 2, and 7. We begin with independent claims 1 and 7. Appellants contend that Boivie does not seek to shorten the header, but rather puts more information into the header in order to ease the burden on the routers. (Br. 11). Appellants assert that each of nodes R2, C, and F are not final destination nodes, but instead are routers along the way. (Br. 12). Appellants contend that Boivie's folding method uses a successive factoring process to compress routing information, but not to compress the destination addresses. (Br. 13). In addition, Appellants note that each of claims 1 and 7 recites "that the destination address consists of final destination addresses, whereas Boivie includes not only the final destination addresses, but also the address of intermediate nodes." (Br. 13).

The Examiner contends (Answer[3] 5) that "[t]he only difference between the claims and Boivie lies in the type of addressing used, in the

[3] Supp. Answer mailed October 25, 2006 (hereinafter: Answer).

claims the final destination addresses do not include references to the intermediate node, while Boivie does." In the Examiner's opinion, it would have been obvious to apply the compression technique of Boivie with any addressing scheme because it would have the same benefit, reduction of traffic.

We reverse and add a New Ground of Rejection under 37 C.F.R. § 41.50(b).

ISSUE

Have Appellants shown that the Examiner erred in holding that Boivie renders obvious the language of claims 1-7, 9, and 11-20. With respect to independent claims 1 and 7, and the claims dependent therefrom, the issue turns on whether Boivie suggests that the compound destination address consists of compressed final destination addresses. With regard to claims 19 and 20 the issue is whether Boivie would have suggested to an artisan the language of these claims.

FINDINGS OF FACT

We determine that the following enumerated findings are supported by at least a preponderance of the evidence. *Ethicon, Inc. v. Quigg*, 849 F.2d 1422, 1427, 7 USPQ2d 1152, 1156 (Fed. Cir. 1988) (explaining the general evidentiary standard for proceedings before the Office).

1. Appellants invented a device and method to compress destination addresses of a multicast message. (Specification 1).

2. The main advantages of connectionless multicasting are that no multicast allocation is required and routers do not have to maintain a

state per session. Connectionless multicasting however requires each packet to contain all remaining destinations. (Specification 2 & 3).

3. A common prefix based compression method for IP destination addresses is known. (*Id.*).

4. An object of the invention is to significantly reduce the overhead of multicasted packets in any connectionless multicast session wherein at least two destination addresses have a common prefix. (*Id.*).

5. The invention can be applied iteratively so that first, a list of IP addresses with a rather large common prefix is compressed into a compound address. The compound address can then be further combined with other compound addresses or IP destination addresses that all have a shorter common prefix to generate a new compound address in a next compression iteration. (Specification 4-5).

6. Host H1 and the three routers R1-R3 incorporate a destination list compression device. (Specification 5).

7. Boivie relates to multicasting under various protocols, including the Internet protocol (IP). (col. 1, ll. 13-15).

8. The system can handle a very large number of small groups because the nodes in the network do not need to disseminate or store any multicast routing information for these groups. (Boivie, col. 2, ll. 19-22).

9. In accordance with the invention of Boivie, the source of a multicast transmission sends multicast packets, each comprising a payload and multicast route information, for use by intermediate

nodes to route each packet to the desired destinations, replicating the packets as necessary. (col. 2, ll. 36-40).

10. At the beginning of a multicast transmission, node A determines the route to each of the destinations. Once node A has a route to each of the destinations, it can fold the routes together into a multicast tree. This folding can be accomplished in two steps. In step 1, routes that share a common prefix are grouped together. For example, if node A had the following routes to destinations B, C, and D: R1R2D, R1B, R1R2C, it would sort the routes to produce the following sorted lists: R1B, R1R2C, R1R2D. In step 2, node A factors out the common parts of adjacent list elements to produce a single route corresponding to a multicast distribution. The above routes can be combined to produce the following list: R1B, R1R2(C D). Then the remaining two routes can be combined to produce a list with a single element. R1 (B R2(C D)). (col. 4, ll. 30-57).

11. The above folded routes include intermediate router (e.g. R1, R2) information and do not consist of final destination addresses.

PRINCIPLES OF LAW

To determine whether a prima facie case of obviousness has been established, we are guided by the factors set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 17, 148 USPQ 459, 467 (1966), *viz.*, (1) the scope and content of the prior art; (2) the differences between the prior art and the claims at issue; and (3) the level of ordinary skill in the art.

In addition to our review of the *Graham* factors, we also consider whether a person of ordinary skill in the art, possessed with the understandings and knowledge reflected in the prior art, and motivated by the general problem facing the inventor, would have been led to make the combination recited in the claims. *In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, The Federal Circuit states that "[the] mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification." *In re Fritch*, 972 F.2d 1260, 1266 n.14, 23 USPQ2d 1780, 1783-84 n.14 (Fed. Cir. 1992), citing *In re Gordon*, 773 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984).

"Obviousness may not be established using hindsight or in view of the teachings or suggestions of the inventor." *Para-Ordnance Mfg. V. SGS Importers Int'l*, 73 F.3d 1087, 37 USPQ 2d at 1239 (Fed. Cir. 1995), citing *W. L. Gore & Assocs., v. Garlock, Inc.*, 721 F.2d at 1551, 1553, 220 USPQ at 311, 312-13 (Fed. Cir. 1983).

ANALYSIS

Although we find from fact 10 that Boivie's folding of routes groups together routes with common prefixes, and includes a single route having common suffixes, we find, from fact 11 that in Boivie, the compound address includes the intermediate routers, as argued by Appellants, and does not consist of compressed final destination addresses, as required by independent claims 1 and 7. With respect to the Examiner's assertion (Answer 5) that "[i]t would have been obvious ... to apply the compression

technique of Boivie with any addressing scheme because it would have the same benefit, reduction of traffic," we consider the Examiner's assertion to be that the system of Boivie could be used with an addressing scheme that does not include intermediate routers, or with Appellants' addressing scheme. However, we find no teaching or suggestion of making these modifications based upon the description of Boivie, and we find the Examiner's position to be based upon hindsight. In addition, we find that the Examiner's assertion does not address the claim language of the compound destination address *consisting of* compressed final destination addresses. From the above language of the claims, we find that the claims preclude the compressed final destination addresses from including the intermediate routers of Boivie.

We are not persuaded by the Examiner's assertion (Answer 7) that "appealed claim 1 is directed to compressing a list of addresses and does not directly claim compression of the addresses themselves." (Emphasis original.) Firstly, claim 1 is directed to compressing a list of final destination addresses, not just destination addresses. Secondly, from the language in the claim of detecting common prefixes, generating a suffix list for final destination addresses, and adding the suffix list to the common prefix, we find that the claim does recite compression of the addresses themselves. From all of the above, we find that the teachings and suggestions of Boivie would not have suggested the language of independent claims 1 and 7, or claims 2-6 and 9-18, which depend therefrom.

We turn next to independent claim 19. We note at the outset that Appellants have not provided any specific arguments with respect to this claim in either the Brief or the Reply Brief. In addition, it is unclear from the language of the claim whether claim 19 is an independent claim or a dependent claim, for the reasons which follow. Claim 19 recites, *inter alia*, that "wherein said host comprises a device for compressing a list of final destination addresses according to claim 1." It is not clear from this language whether claim 19 is a dependent claim because it refers back to an earlier claim, in which case it would include all of the limitations of claim 1, or whether claim 19 is an independent claim that refers back to independent claim 1 for the device for compressing a list of final destination addresses. The only time claim 1 recites "a device for compressing a list of final destination addresses" appears in the preamble of the claim. This would imply that the device of claim 1 is included in claim 19. However, from our review of claim 19 and dependent claim 20 we find that claim 19 does not recite creating a compound destination address consisting of compressed final destination addresses. However, claim 20 recites, *inter alia*, that the adder acts to "create a new compound destination address consisting of compressed final destination addresses." Under the Doctrine of Claim Differentiation, since the consisting language appears in dependent claim 20, we find that it is not included in independent claim 19. Thus, it appears that claim 19 is an independent claim that refers to another independent claim.

Under 37 C.F.R. § 1.75, a claim that refers to an earlier claim is a dependent claim. That dependent claim shall be construed to include all of the limitations of the claim from which it depends. Under 35 U.S.C. § 112(4) a claim in dependent form shall contain a reference to a claim previously set forth and then specify a further limitation .... Because claim 19 does not appear to include all of the limitations of claim 1, the metes and bounds of claim 19, and claim 20, which depends therefrom, cannot be readily ascertained. It follows that we must reverse, *pro forma*, the rejection of claims 19 and 20, because we find the claims to be indefinite.

New Ground of Rejection under the provisions of 37 C.F.R. § 41.50(b).

Claims 19 and 20 are rejected under 35 U.S.C. § 112 (second paragraph) as being indefinite for the reasons enumerated, *supra*.

In comparing the claimed subject matter with the applied prior art, it is apparent to us that considerable speculations and assumptions are necessary in order to determine what in fact is being claimed. Since a rejection based on prior art cannot be based on speculations and assumptions, *see In re Steele*, 305 F.2d 859, 862, 134 USPQ 292, 295 (CCPA 1962), we enter this new ground of rejection of claims 19 and 20. Note that because we find claims 19 and 20 to be indefinite, we do not address the merits of the rejection of these claims.

CONCLUSION OF LAW

On the record before us, Appellants have shown that the Examiner has erred in holding that the teachings and suggestions of Boivie would have suggested the language of claims 1-7 and 9-18. In addition, we reverse the

rejection of claims 19 and 20 because we find these claims to be indefinite, and enter a new ground of rejection of claims 19 and 20 under 35 U.S.C. § 112 (second paragraph).

DECISION

The Examiner's rejection of claims 1-7 and 9-20 is reversed. In addition, we add a New Ground of Rejection of claims 19 and 20 (as being indefinite) under the provisions of 37 C.F.R. § 41.50(b).

REVERSED; 37 C.F.R. § 41.50(b)

vsh

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